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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/023,680	12/18/2001	Darren J. Cepulis	COMP:0255 P00-3415	5698

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Intellectual Property Administration
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EXAMINER	
SURYAWANSHI, SURESH	
ART UNIT	**PAPER NUMBER**
2115	

DATE MAILED: 12/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/023,680	CEPULIS ET AL.	
	Examiner	Art Unit	
	Suresh K. Suryawanshi	2115	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/21/05 reconsideration*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-24 are presented for examination.

2. The text of those sections of Title 35 U.S. Code not included in this action can be found in the prior Office Action.

3. The rejections are respectfully maintained and incorporated by reference as set forth in the last office action.

4. Claims 1-2, 4, 6, 8 and 21-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Arndt (US Patent No 6,877,158 B1).

5. As per claim 1, Arndt discloses a method for operating a computing device, comprising:

tabulating resources of the computing device into one or more resource tables [Fig. 2, 3; page frame tables; col. 4, lines 24-39; partitioned hardware; col. 5, line 59 -- col. 6, line 3];

allocating resources from one or more of the resource tables to a plurality of resource sets prior to loading a desired O/S layer for the computing device [Fig. 2, 3; page frame tables; col. 4, lines 24-39; partitioned hardware; col. 5, line 59 -- col. 6, line 3; detailed how each OS image's page is mapped to page frame table and it is done prior to loading a desired O/S layer as the logical partitioning happens at LPAR option; col. 1, lines 15-26]; and

loading a desired operating system on each set of the plurality of resource sets at the desired O/S layer [col. 1, lines 15-26; col. 2, line 64 -- col. 3, line 5; LPAR option within the computing device allows multiple operating systems; col. 4, lines 24-39; col. 5, line 59 -- col. 6, line 3; col. 6, lines 14-39].

6. As per claim 21, Arndt discloses a system comprising:

a resource tabulator module configured to obtain resource tables associated with a computing device [Fig. 2, 3; page frame tables; col. 4, lines 24-39; partitioned hardware; col. 5, line 59 -- col. 6, line 3];

a resource divider module configured to create multiple resource sets from the resource tables [Fig. 2, 3; page frame tables; col. 4, lines 24-39; partitioned hardware; col. 5, line 59 -- col. 6, line 3; detailed how each OS image's page is mapped to page frame table and it is done prior to loading a desired O/S layer as the logical partitioning happens at LPAR option; col. 1, lines 15-26];

an operating system loader module configured to load a desired operating system on each of the multiple resource sets [col. 1, lines 15-26; col. 2, line 64 -- col. 3, line 5; LPAR option within the computing device allows multiple operating systems; col. 4, lines 24-39; col. 5, line 59 -- col. 6, line 3; col. 6, lines 14-39]; and

an interrupt controller module configured to detect to detect and deliver interrupts to at least one of the operating system through a peripheral components interconnect ("PCI") bus [inherent to the system; col. 1, lines 15-26; interrupt management; col. 3, lines 29-66; peripheral component interconnect (PCI)].

7. As per claim 2, Arndt discloses allocating resources comprises organizing the resources in a ROM-based environment [col. 4, lines 32-39].

8. As per claim 4, Arndt discloses allocating resources comprises dividing the resources in an initializing phase of the computing device [col. 1, lines 15-26; LPAR option is the option during an initializing phase of the computing device].

9. As per claim 6, Arndt discloses allocating resources comprises identifying and initializing at least a portion of the resources [col. 1, lines 15-26; LPAR option is the option during an initializing phase of the computing device and initialization of the required resources of a particular partition is a must before utilizing the resources].

10. As per claim 8, Arndt discloses running multiple desired operating systems [Fig. 3; col. 1, lines 15-20].

11. As per claim 22, Arndt discloses that the interrupt controller module is configured to communicate through the PCI bus [col. 3, lines 29-65].

12. As per claim 23, Arndt discloses identifying a processor within one of the resource sets [Fig. 2 and 3; col. 4, lines 24-39].

13. As per claim 24, Arndt discloses that the interrupt controller module comprises a legacy system [col. 1, lines 15-26; interrupt management].

14. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arndt (US Patent No 6,877,158 B1) in view of Smith et al (US Patent No 6,833,792 B1; hereinafter Smith).

15. As per claim 3, Arndt discloses the invention substantially. Arndt does not explicitly disclose about gathering device data from a BIOS module. However, Smith expressly discloses about a BIOS interrogating routine to gather device data from a BIOS module [col. 1, lines 42-53, 60-63; col. 3, line 63 -- col. 4, line 10]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references as both are directed to gather device data at boot-up process of the computing device.

16. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arndt (US Patent No 6,877,158 B1) in view of Kleinsorge et al (US Patent No 6,247,109 B1; hereinafter Kleinsorge).

17. As per claim 5, Arndt discloses the invention substantially. Arndt does not expressly disclose about allocating resources comprises sharing at least a portion of the resources. However, Kleinsorge explicitly discloses about shared resources between multiple operating systems running on different partitions [col. 4, lines 50-52; col. 11, lines 8-12; shared resources]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references as both are directed to group computer hardware in different partitions and running an operating system on each partition.

18. As per claim 7, Arndt discloses the invention substantially. Arndt does not disclose about manually selecting desired allocations of the resources via a user interface. However, Kleinsorge expressly discloses about manually moving resources between partitions [col. 8, lines 25-28; col. 9, lines 3-5; administrator or console interface]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references as both are directed to group computer hardware in different partitions and running an operating system on each partition.

19. Claims 9-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arndt (US Patent No 6,877,158 B1) in view of Gurumoorthy et al (US Patent No 6,829,725 B2[1]; hereinafter Gurumoorthy).

[1] Prior art cited by the examiner in the prior office action.

20. As per claim 9, Arndt discloses a method for simultaneously supporting a plurality of independent operating systems on a computing device, comprising:

cataloguing resources of the computing devices prior to O/S booting for the computing device [Fig. 2, 3; page frame tables; col. 4, lines 24-39; partitioned hardware; col. 5, line 59 -- col. 6, line 3];

dividing the resources into multiple subsets prior to O/S booting wherein dividing the resources comprises partitioning the resources [Fig. 2, 3; page frame tables; col. 4, lines 24-39; partitioned hardware; col. 5, line 59 -- col. 6, line 3; detailed how each OS image's page is mapped to page frame table and it is done prior to loading a desired O/S layer as the logical partitioning happens at LPAR option; col. 1, lines 15-26]; and

loading the plurality of independent operating systems, at least one O/S being loaded on each resource set of the multiple subsets [col. 1, lines 15-26; col. 2, line 64 -- col. 3, line 5; LPAR option within the computing device allows multiple operating systems; col. 4, lines 24-39; col. 5, line 59 -- col. 6, line 3; col. 6, lines 14-39].

Arndt does not disclose about use of an extensible firmware interface. But clearly Arndt discloses use of some firmware in the implementation of his invention [col. 2, lines 5-15; col. 4, lines 32-39]. However, Gurumoorthy expressly discloses about the extensible firmware interface [col. 3, lines 12-18; col. 4, lines 55-61, 64-65; col. 5, lines 22-35, 60-64; col. 6, lines 1-19].

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references as both are related to launch one or more operating systems to the processing system. Moreover, the extensible firmware interface is more common and well known to a routineer in the art. Clearly, it will be more beneficial to utilize the software that is widely used than a proprietary one and plus cost effectiveness.

21. As per claim 14, Arndt discloses a system for booting a computing device, comprising:

a resource tabulator module configured to organize data on system resources for the computing device [Fig. 2, 3; page frame tables; col. 4, lines 24-39; partitioned hardware; col. 5, line 59 -- col. 6, line 3]; and

a resource divider module configured to create multiple resource sets for the computing device [Fig. 2, 3; page frame tables; col. 4, lines 24-39; partitioned hardware; col. 5, line 59 -- col. 6, line 3; detailed how each OS image's page is mapped to page frame table; col. 1, lines 15-26]; and

an operating system loader module configured to load a desired operating system on each of the multiple resource sets [col. 1, lines 15-26; col. 2, line 64 -- col. 3, line 5; LPAR option within the computing device allows multiple operating systems; col. 4, lines 24-39; col. 5, line 59 -- col. 6, line 3; col. 6, lines 14-39].

Arndt does not disclose about use of an extensible firmware interface. But clearly Arndt discloses use of some firmware in the implementation of his invention [col. 2, lines 5-15; col. 4, lines 32-39]. However, Gurumoorthy expressly discloses about the extensible firmware interface [col. 3, lines 12-18; col. 4, lines 55-61, 64-65; col. 5, lines 22-35, 60-64; col. 6, lines 1-19]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references as both are related to launch one or more operating systems to the processing system. Moreover, the extensible firmware interface is more common and well known to a routineer in the art. Clearly, it will be more beneficial to utilize the software that is widely used than a proprietary one and plus cost effectiveness.

22. As per claim 10, Arndt discloses plurality of independent operating systems provide independent platforms for loading and running application software [Fig. 2 and 3; col. 3, lines 1-5].

23. As per claim 11, Arndt discloses that cataloguing, dividing and loading are performed in an initialization phase of the computing device [col. 1, lines 15-26; LPAR option is the option during an initializing phase of the computing device].

24. As per claim 12, Arndt discloses dividing the resources comprises allocating desired portions of hardware and system services to each of the multiple subsets [Fig. 2 and 3; col. 4,

lines 24-39; partitioned hardware; col. 5, line 59 -- col. 6, line 3; detailed how each OS image's page is mapped to page frame table; col. 1, lines 15-26].

25. As per claim 15, Arndt discloses that the resource tabulator module and the resource divider module are disposed in a pre-boot environment [col. 1, lines 15-26; LPAR option is the option during an initializing phase of the computing device].

26. As per claim 16, Arndt discloses that the resource tabulator module and the resource divider module are disposed in ROM [col. 4, lines 32-39].

27. As per claim 20, Arndt discloses that the resource divider module comprises a hardware partitioning module [fig. 2; col. 4, lines 24-39].

28. Claims 13 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arndt (US Patent No 6,877,158 B1), Gurumoorthy et al (US Patent No 6,829,725 B2[1]) and in view of Kleinsorge et al (US Patent No 6,247,109 B1; hereinafter Kleinsorge).

29. As per claim 13, Arndt and Gurumoorthy disclose the invention substantially. Arndt and Gurumoorthy do not expressly disclose about sharing the resources. However, Kleinsorge explicitly discloses about shared resources between multiple operating systems running on different partitions [col. 4, lines 50-52; col. 11, lines 8-12; shared resources]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to

combine the cited references as they are directed to group computer hardware in different partitions and running an operating system on each partition.

30. As per claim 19, Arndt and Gurumoorthy disclose the invention substantially. Arndt and Gurumoorthy do not disclose about the resource divider module comprises a user interface. However, Kleinsorge expressly discloses about manually moving resources between partitions [col. 8, lines 25-28; col. 9, lines 3-5; administrator or console interface]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references as they are directed to group computer hardware in different partitions and running an operating system on each partition.

31. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arndt (US Patent No 6,877,158 B1), Gurumoorthy et al (US Patent No 6,829,725 B2[1]) and in view of Smith et al (US Patent No 6,833,792 B1; hereinafter Smith).

32. As per claims 17 and 18, Arndt and Gurumoorthy disclose the invention substantially. Arndt and Gurumoorthy do not explicitly disclose about the pre-boot environment comprises hardware detection modules system resources. However, Smith expressly discloses about a BIOS interrogating routine to gather device data from a BIOS module [col. 1, lines 42-53, 60-63; col. 3, line 63 -- col. 4, line 10]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references as they all are directed to gather device data at boot-up process of the computing device.

Response to Arguments

33. Applicants' arguments filed 10/21/05 have been fully considered but are not persuasive.

34. In the remarks, applicants argued in substance that (1) the Arndt reference discloses a system in which operating systems ("OSs") are not loaded onto a resource set; (2) the Arndt reference discloses a system where virtual addresses are mapped to physical addresses after the operating system has been loaded in contrast of allocating resources from one or more of the resource tables to a plurality of resource sets prior to loading a desired O/S layer.

35. As to point (1), the Arndt reference expressly discloses a system in which operating systems are loaded onto a resource set [col. 1, lines 15-26]. Arndt clearly discloses about having a non-overlapping sub-set of the platform's resources called a partition onto which an operating system image runs. Further, Arndt gives a clear example of three different partitions (P1, P2, P3) and each partition having its own separate resource set [col. 3, lines 6-16]. Arndt expressly discloses about running three different operating systems on these three different partitions and also says that each operating system executing within data processing system 100 **may access only those I/O units that are within its logical partition** [emphasis added; col. 3, lines 17-28]. Thus, the Arndt reference clearly teaches about loading a desired operating system on each set of the plurality of resource sets as recited by independent claims presented by applicants.

36. As to point (2), the Arndt reference discloses a system where virtual addresses are mapped to physical addresses after the operating system has been loaded but these resources are those resources that can be used by different operating systems or partitions, as shared resources. For example, a hard disk or a storage device as shown in fig. 1 and fig. 2 can be shared by a multiple operating systems or partitions. Therefore, Arndt uses the method of virtual address mapping to physical address. However, Arndt clearly discloses having separate logical partitions for separate operating systems as explained above in point (1). Therefore, the Arndt reference clearly teaches about allocating resources from one or more of the resource tables to a plurality of resource sets prior to loading a desired O/S layer [Fig. 1-3; col. 1, lines 15-26; col. 3, lines 17-28] as recited by independent claims presented by applicants.

Conclusion

37. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

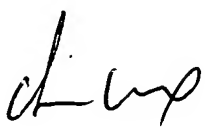
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suresh K. Suryawanshi whose telephone number is 571-272-3668. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas C. Lee can be reached on 571-272-3667. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

sks
December 20, 2005



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